REMARKS

An Excess Claim Fee Payment Letter is submitted herewith for one (1) excess total claims.

Claims 1-21 are all the claims presently pending in the application. Claims 1, 3-4, 6-7, 12, 14-15 and 17-18 have been amended to more particularly define the invention. Claims 20 and 21 have been added to claim additional features of the invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Applicant gratefully acknowledges that claims 4-5 and 12-13 would be allowable if rewritten in independent form. However, Applicant respectfully submits that all of the claims are allowable.

Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Otani et al. (U.S. Patent No. 6,115,156). Claims 6-8 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Otani et al., in view of Bergano (U.S. Patent No. 6,137,604). Claims 9-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Otani et al., in view of Prior Art Figure 1. Claims 14-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Otani et al., in view of Prior Art Figure 1, and further in view of Bergano. Claims 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Prior Art Figure 2, in view of Otani et al. Claim 19 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Prior Art Figure 2, in view of Otani et al., and further in view of Bergano.

These rejections are respectfully traversed in view of the following discussion.

I. THE CLAIMED INVENTION

The claimed invention, as recited in the exemplary embodiment of claim 1, is directed to a light branching apparatus, including an optical splitter which splits an optical signal for a plurality of channels on a first optical fiber into at least a first optical channel signal on a first channel of a second optical fiber and a plurality of second optical channel signals on a

plurality of second channels of a third optical fiber, and a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel and compensates wavelength dispersion of the first optical channel signal due to the optical splitter.

Conventionally, equalizing fibers are used to "sandwich" a light branching apparatus in order to prevent an imbalance in length (Application at page 7, lines 9-17). However, this resulted in many fibers being needed, and the installation of these equalizing fibers is troublesome and time-consuming.

The claimed invention, on the other hand, includes a light branching apparatus having a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel and compensates wavelength dispersion of the first optical channel signal due to the optical splitter (Application at Figures 3-4; page 15, lines 14-24). This features makes it easy to install the light branching apparatus in a desired portion of a transmission path.

II. THE 35 USC §112, SECOND PARAGRAPH REJECTION

Claims 6-7 and 12-13 stand rejected under 35 U.S.C. §112, second paragraph. Presumably the Examiner mistakenly identified claims 12 and 13 as the subject of this rejection, and instead, intended claims 14 and 15 to be the subject of this rejection.

In any event, Applicant notes that claims 6, 7, 14 and 15 have been amended to address the Examiner's concerns. Thus, Applicant respectfully submits that these claims are clear and not indefinite, as alleged by the Examiner.

In view of the foregoing, the Examiner is respectfully requested to withdraw this rejection.

III. THE PRIOR ART REFERENCES

A. The Otani Reference

The Examiner alleges that Otani teaches the claimed invention of claims 1-3. Applicant submits, however, that there are elements of the claimed invention which are neither taught nor suggested by Kern.

Otani discloses a demultiplexer having a series of couplers disposed in multi-stages. Each coupler has two branches with one branch of each coupler connected to a separate optical filter and the other branches are series connected to a subsequent stage of the couplers through equalizing fibers (Otani at Abstract).

Applicant submits, however, that Otani does not teach or suggest *"a first wavelength dispersion compensator on said second optical fiber which is provided for said first channel and compensates wavelength dispersion of said first optical channel signal due to said optical splitter"*, as recited in claim 1 and similarly recited in claims 9, 17 and 18.

As explained in the present Application, unlike conventional apparatuses in which equalizing fibers are used to "sandwich" a light branching apparatus in order to prevent an imbalance in length, the claimed invention includes a light branching apparatus having a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel and compensates wavelength dispersion of the first optical channel signal due to the optical splitter (Application at Figures 3-4; page 15, lines 14-24). This features makes it easy to install the light branching apparatus in a desired portion of a transmission path.

Clearly, these features are not taught or suggested by Otani. Indeed, the Examiner attempts to equate the first equalizing fiber 2 in Otani with the first wavelength dispersion compensator in the claimed invention. This is clearly incorrect.

In fact, the Otani multiplexer is completely unrelated to the light branching apparatus of the claimed invention. For example, Applicant would point out that the equalizing fiber 2 is on optical fiber 1 which is completely unlike the claimed invention. That is, the equalizing fiber 2 in Otani is not on a second optical fiber and is not provided for a first channel and does not compensate wavelength dispersion of the first optical channel signal due to the optical splitter.

Indeed, Otani explains the operation of the demultiplexer which makes clear that it is completely unrelated to the claimed light branching apparatus. Specifically, Otani states that "[t]he length of the equalizing fibers could be decreased ... because the respective equalizing fibers 23, 24 and 25 are serially disposed, and because the wavelength-division multiplexed optical signals inputted to the respective optical filters 16, 17 and 18 are compensated for dispersion not only by the preceding equalizing fiber but also by equalizing fibers disposed

upstream thereof" (Otani at col. 3, lines 49-56).

Clearly, Otani is has a different structure and operates on a different principle than the claimed invention. Indeed, the claimed invention does not necessarily utilize such a serial configuration of equalizing fibers as in Otani. Instead, the claimed invention splits the optical signal into at least a first optical channel signal on a first channel of a second optical fiber, and a plurality of second optical channel signals on a plurality of second channels of a third optical fiber, and compensates wavelength dispersion of said first optical channel signal due to said optical splitter using a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel.

Therefore, Applicant submits that there are elements of the claimed invention that are not taught or suggest by Otani. Therefore, the Examiner is respectfully requested to withdraw this rejection.

B. The Bergano Reference

The Examiner alleges that Otani would have been combined with Bergano to form the invention of claims 6-8. Applicant submits, however, that Otani would not have been combined with Bergano and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Bergano discloses a method for managing dispersion in a wavelength division multiplexed (WDM) optical transmission system (Bergano at Abstract).

However, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, these references are directed to different problems and solutions.

Further, these references are completely unrelated, and no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight. Indeed, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. In fact, contrary to the Examiner's allegations, neither of these references teach or suggest their combination.

Therefore, Applicant respectfully submits that one of ordinary skill in the art would

not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Otani, nor Bergano, nor any combination thereof, teaches or suggests *"a first wavelength dispersion compensator on said second optical fiber which is provided for said first channel and compensates wavelength dispersion of said first optical channel signal due to said optical splitter"*, as recited in claim 1 and similarly recited in claims 9, 17 and 18.

As noted above, unlike conventional apparatuses, the claimed invention includes a light branching apparatus having a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel and compensates wavelength dispersion of the first optical channel signal due to the optical splitter (Application at Figures 3-4; page 15, lines 14-24). This features makes it easy to install the light branching apparatus in a desired portion of a transmission path.

Clearly, these features are not taught or suggested by Bergano. Indeed, Applicant notes that the Examiner is not relying on Bergano as allegedly teaching this feature, but instead relies on Bergano as allegedly disclosing another feature.

Further, the Examiner surprisingly attempts to equate the equalizing fibers 205_1 to 205_N with wavelength dispersion compensators in the claimed invention. This is clearly incorrect.

Indeed, Bergano states that "[t]he dispersion in each of the plurality of compensating fibers 205_1, 205_2, 205_3, ... 205_N is selected so that the average chromatic dispersion of the concatenated transmission spans 104 upstream from the dispersion compensator 105 and the equalizing sections 202 and 205 are substantially returned to zero at each of the center wavelengths λ_N" (Bergano at col. 4, lines 20-26). Thus, nowhere does Bergano teach or suggest that the compensating fibers compensate wavelength dispersion of a first optical channel signal due to an optical splitter.

Therefore, Applicant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention. Therefore, Applicant respectfully request that the Examiner withdraw this rejection.

C. The Prior Art Figure 1

The Examiner alleges that Otani would have been combined with Prior Art Figure 1, to form the claimed invention of claims 9-11. The Examiner further alleges that the alleged Otani/Prior Art Figure 1 combination would have been further combined with Bergano to form the invention of claims 14-16. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Prior Art Figure 1 illustrates a conventional optical communication system having a light branching apparatus 13. Equalizing fibers 18, 19, 21, 22 are inserted to compensate for distances in the optical paths.

However, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, these references are directed to different problems and solutions.

Further, these references are completely unrelated, and no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight. Indeed, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. In fact, contrary to the Examiner's allegations, neither of these references teach or suggest their combination.

Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Otani, nor Bergano, nor the Prior Art Figure 1, nor any combination thereof, teaches or suggests *"a first wavelength dispersion compensator on said second optical fiber which is provided for said first channel and compensates wavelength dispersion of said first optical channel signal due to said optical splitter"*, as recited in claim 1 and similarly recited in claims 9, 17 and 18.

Clearly, these features are not taught or suggested by Prior Art Figure 1. Indeed, Applicant notes that the Examiner is not relying on Prior Art Figure 1 as allegedly teaching

this feature, but instead relies on Prior Art Figure 1 as allegedly disclosing another feature.

In fact, nowhere does Prior Art Figure 1 even teach or suggest the contents of the light branching apparatus 13. Therefore, Prior Art Figure 1 clearly cannot teach or suggest the claimed light branching apparatus which compensates wavelength dispersion of said first optical channel signal due to said optical splitter using a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel.

Therefore, Applicant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention. Therefore, Applicant respectfully request that the Examiner withdraw this rejection.

D. The Prior Art Figure 2

The Examiner alleges that the Prior Art Figure 2 would have been combined with Otani to form the claimed invention of claims 17 and 18, and that the alleged Prior Art Figure 2/Otani combination would have been further combined with Bergano to form the invention of claim 19. Applicant submits, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention.

Prior Art Figure 2 illustrates a conventional light branching apparatus 13. The apparatus includes an optical switch 13A and a light separating/synthesizing unit 13B (Application at page 3, lines 22-26).

However, Applicant submits that these references would not have been combined as alleged by the Examiner. Indeed, these references are directed to different problems and solutions.

Further, these references are completely unrelated, and no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight. Indeed, Applicant submits that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner. In fact, contrary to the Examiner's allegations, neither of these references teach or suggest their combination.

Therefore, Applicant respectfully submits that one of ordinary skill in the art would not have been so motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Moreover, neither Otani, nor Bergano, nor the Prior Art Figure 2, nor any combination thereof, teaches or suggests *"a first wavelength dispersion compensator on said second optical fiber which is provided for said first channel and compensates wavelength dispersion of said first optical channel signal due to said optical splitter"*, as recited in claim 1 and similarly recited in claims 9, 17 and 18.

Clearly, these features are not taught or suggested by Prior Art Figure 2. Indeed, Applicant notes that the Examiner is not relying on Prior Art Figure 2 as allegedly teaching this feature, but instead relies on Prior Art Figure 2 as allegedly disclosing another feature.

In fact, as noted above, Prior Art Figure 2 teaches a light branching apparatus having an optical switch 13A and a light separating/synthesizing unit 13B. Nowhere does Prior Art Figure 2 teach or suggest the claimed light branching apparatus which compensates wavelength dispersion of said first optical channel signal due to said optical splitter using a first wavelength dispersion compensator on the second optical fiber which is provided for the first channel.

Therefore, Applicant submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention. Therefore, Applicant respectfully request that the Examiner withdraw this rejection.

IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-21, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 9/14/04

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